PRESERVE THIS BOOK FOR REFERENCE

INSTALLATION AND CARE OF Sunbeam FARM MODEL A.C. ELECTRIC GEAR

(WITH INBUILT OVERLOAD SLIP CLUTCH)

Sunbeam
CORPORATION LTD

SYDNEY • MELBOURNE • ADEL[illegible] BRISBANE

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INSTALLATION OF STANDS

The stand of gear may be attached to a post or wall or bolted to 10" x 4" oregon planking, mounted between posts. For this latter method, 4¾ x ⅜" bolts are supplied with each unit.

ERECTING PLANKING: - Having the posts in position the next step is to attach the planking - proceed as follows: -

1. Mark both end posts 7' from the floor. This being distance to centre of the plank from the floor.

2. Drive a nail in both posts at this mark.

3. Run a string (builder's line for preference) across the posts from the nails.

4. Make sure the string is pulled taut, and in a straight line.

5. Place a line level about centre of the string - if out of level move string equal distance up or down on both ends.

6. Measure across the face of the planking to ascertain its width. Then mark from the string, towards the top and bottom of the post, the width of the plank, repeating this procedure on each post. (Fig. 1).

7. Measure from the string at the post a distance of 1" into the post marking this position. Then draw a vertical line to meet the mark above and below. Do this on both sides of every post (Fig. 2).

8. Saw through the horizontal line until meeting the vertical line.

[illegible] Recess the posts between the saw cuts to take the planking. The wood may be removed with an adze, tomahawk or with chisel and hammer (Fig. 3). Take care that the faces thus cut for the planking are vertical. It is helpful to have a piece of 6" board 1[illegible]" in length and to place this in the gap in [illegible] then use a spirit level to determine whether the board is truly vertical.

10. When planking is bolted to the posts, two bolts are used for each post. The plank should be level and vertical otherwise the downtube will not hang straight. The position of the stand of gear will be determined by the position of the chute and it is recommended that the downtube of the shearing stand hangs 6" or 7" to the left of the chute, as you face the chute (Fig. 3).

11. Draw vertical line on plank for position of stand of gear (Fig. 4).

12. From the centre of the vertical line, mark the four hole positions using the paper template supplied with plant.

13. Bore 7/16" hole in the plank in each of the positions marked, above and below the centre.

14. The stand of gear can now be attached to the planking by means of the four $\frac{3}{8}$" bolts and side plate supplied with each stand of gear. The next step is to attach the downtube - the correct method

is as follows: -

a) To assemble long tube, push spring as far as it will go into ferrule of tube.

b) Fit collar and screw over ferrule of long tube and tighten screw.

c) Fasten the bayonet on the end of the core to the spindle of the bearing housing assembly, by pushing up the F28X catch on the spindle so as to compress the F60 spring which exerts pressure on this catch. If the catch be pushed up in the manner indicated the bayonet will be found to engage with the small pin in the spindle.

d) Grease the core.

e) Assemble the remaining two collars and screws to the top sleeve. Slide into position over the core and fasten to the shank of the spindle housing as far up as it will go, by means of the top collar and set screw. Make sure that oil hole in the top sleeve is placed away from the plank, and collar set screws to face plank). Fig. 4).

f) Loosen second collar set screw on top sleeve and slide up spring as far as it will go, then tighten set screw. Attach F35 eye spindle, projecting from the assembled joint, to the F-34 hook on the long core (Fig. 4).

g) Again loosen second collar set screw on top sleeve and slide long tube downward over joint as far as it will go, then raise the tube again approximately ½" to ¾" and tighten set screw. The core in the long tube will then have ½" to ¾" end play, which is needed to permit the tube swinging freely when in use. No ferrule is required for this connection.

IMPORTANT:- The Vee Belt on this gear is supplied as a packed part unassembled. To assemble it the following procedure should be carried out:-

(a) Remove guard plate which is held by four screws.
(b) Loosen bolts holding housing in position and push it as far as it will go toward motor.
(c) Place Vee Belt around large pulley first and then run onto small pulley.
(d) Pull housing forward away from motor until sufficient tension is on belt, then hand tighten bolts holding housing and finish tightening with spanner.

INSUFFICIENT TENSION WILL CAUSE BELT SLIP AND A DROP IN SPEED OF DRIVE SPINDLE. EXCESSIVE TENSION WILL OVERLOAD BEARINGS IN MOTOR AND CAUSE EXCESSIVE NOISE OF RACES.

(e) Replace guard plate with four screws.

NOTE:- As a new Vee Belt will stretch in the first few hours of use it is advisable to readjust tension of belt after first day of shearing.

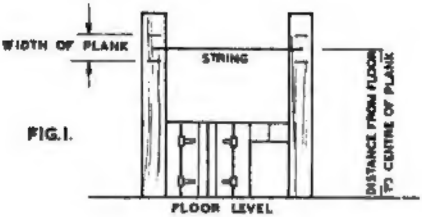


FIG.1.

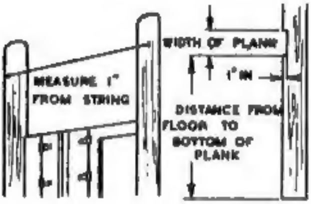


FIG.2

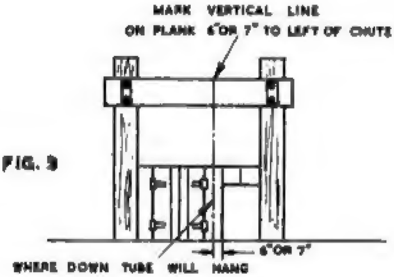

MARK VERTICAL LINE ON PLANK 6" OR 7" TO LEFT OF CHUTE
6" OR 7"
WHERE DOWN TUBE WILL HANG

FIG. 3

The stand of gear is now ready to be connected. Insert the three pin plug to the power socket.

Where the shed does not lend itself to the use of planking to carry the stand of gear or where shearing is to be done at the sheep yards or elsewhere in the open, the methods of erecting the stands of electric shearing gear will be one for determination according to circumstances.

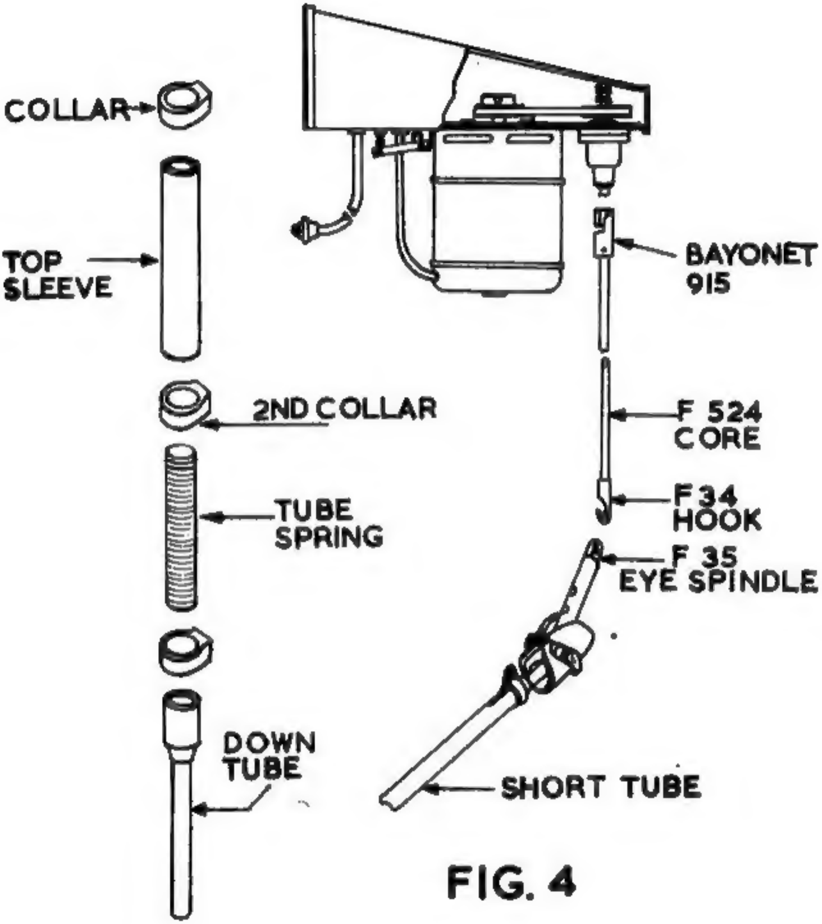

COLLAR
TOP SLEEVE
2ND COLLAR
TUBE SPRING
DOWN TUBE
BAYONET 915
F 524 CORE
F 34 HOOK
F 35 EYE SPINDLE
SHORT TUBE

FIG. 4

GENERAL MAINTENANCE

Do not remove parts or alter any adjustments until instructions have been studied carefully.

Slip Clutch: -

An overload slip clutch is built into the downtube spindle vee pulley. When an obstruction is encountered, pull rope to switch off motor and so prevent clutch slipping unnecessarily. Clear obstruction from handpiece, switch on motor and continue shearing.

Slip Clutch Adjustment: -

If increased clutch tension is required, use two spanners. Hold bottom nut and then loosen top locknut on downtube spindle. Tighten bottom nut to increase tension on spring then secure with top locknut. (Fig. 5.)

Tensioning and Replacing Vee Belt: -

Loosen bolts and nuts holding downtube bearing housing assembly, slide bearing housing assembly towards motor to release belt tension, then remove vee belt. Reverse this procedure to tension the belt. (Fig. 5).

Changing Speed (on special two speed Model) Fig. 5A.

If slower speed is required, loosen bolts and nuts holding downtube bearing housing assembly, slide bearing housing assembly towards motor to release belt tension, then remove the "V" belt from the bottom groove and replace it into the top groove.

Reverse the above procedure to tension the belt.

When Motor will not start:-

Check to see if power is switched on at main switch. If power is available and motor does not operate the services of a licensed electrician should be obtained.

To replace Switch:-

a) Disconnect the three pin plug from power socket.
b) Loosen switch cover nuts and remove cover.
c) Unscrew the switch hexagon nut.
d) Loosen earth locknut and remove earth wires.
e) Loosen the four cord terminal screws, and switch is free to be replaced.

To re-assemble reverse the above procedure.

IMPORTANT:- When replacing new switch make sure cords are wired up correctly, with green wires going to earth.

For correct method of wiring see diagram. (Fig. 6).

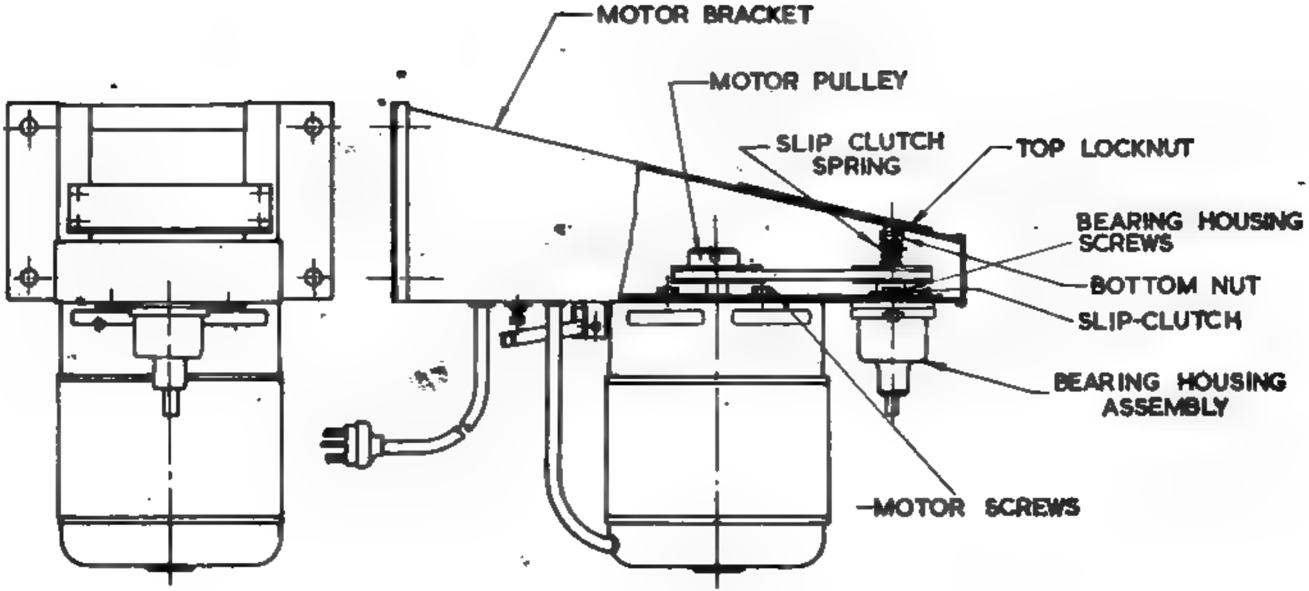
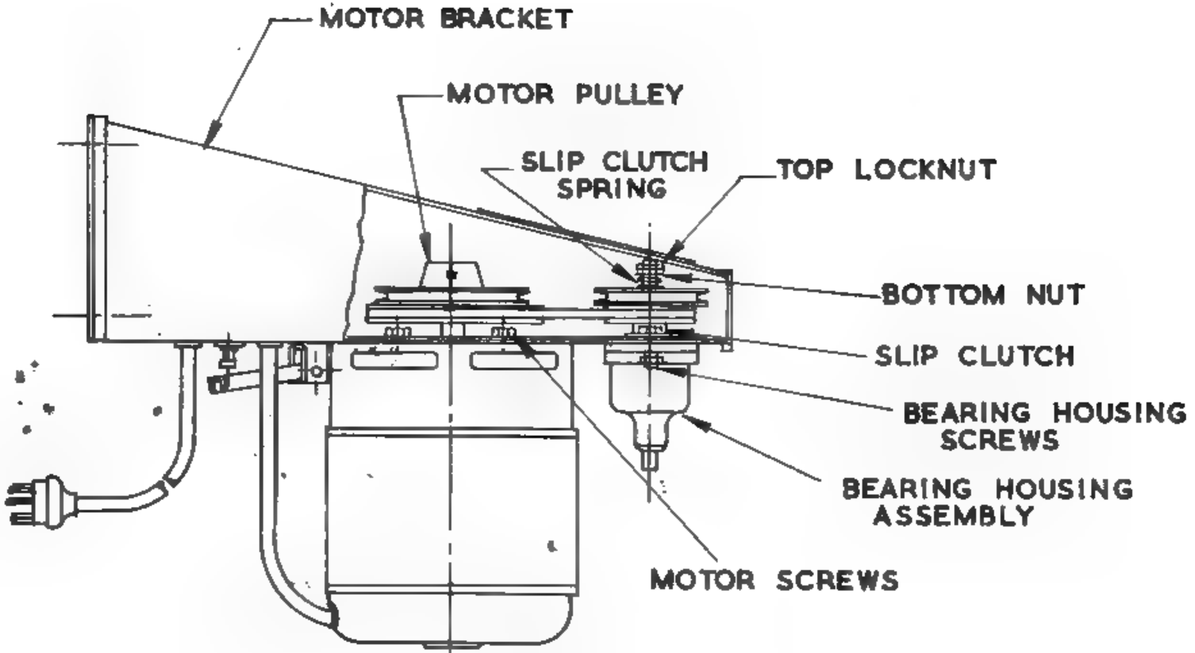
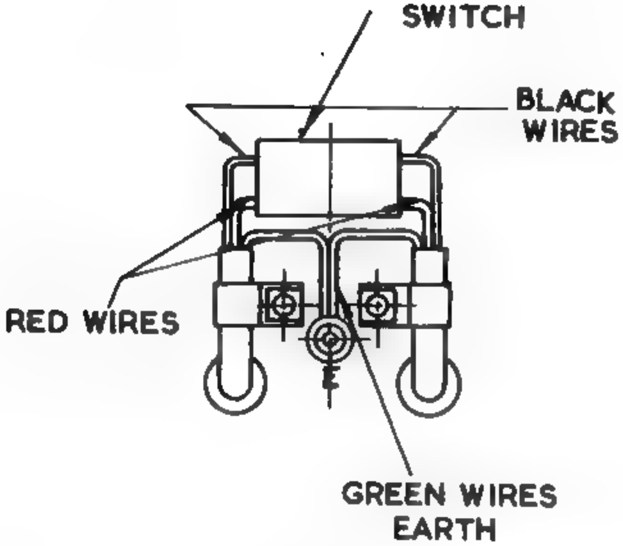

MOTOR BRACKET
MOTOR PULLEY
SLIP CLUTCH SPRING
TOP LOCKNUT
BEARING HOUSING SCREWS
BOTTOM NUT
SLIP-CLUTCH
BEARING HOUSING ASSEMBLY
MOTOR SCREWS

FIG. 5



SPECIAL TWO SPEED MODEL.

FIG. 5A



SWITCH WIRING DIAGRAM

FIG. 6

CARE OF SHEARING STANDS

LUBRICATION: Before starting plant, squirt oil on to the cogs in joint of down tube, holes are provided in joint halves to permit oiling of spindles, also into the sleeve, or bayonet, in bottom end of short tube, by holding tube bottom end up while doing so, and into large sleeve at top of tube where it is fastened to overhead gear.

While the plant is in use the tube joint cogs and spindles should be oiled twice each run. The other parts mentioned above should be oiled regularly.

BEARINGS:

Ball Roll Medium Grease was applied to the ball bearings of main spindle before plant left factory, and no further application to these bearings should be necessary during a first shearing of, say, a month or five weeks.

After that period of work, and prior to the commencement of each subsequent shearing, force Ball Roll Medium Grease into friction spindle housing - through the grease nipples - by means of grease gun. Housing should not be packed tight with the lubricant as the bearings will overheat.

CARE OF MOTORS

CARE MUST ALWAYS BE EXERCISED IN HANDLING ELECTRIC MOTORS. ON NO ACCOUNT SHOULD THEY BE INTERFERED WITH IN ANY WAY BEFORE BEING DISCONNECTED FROM THE CONTROL BOARD.

WHEN ALTERNATING CURRECT MOTORS FAIL TO OPERATE, THE SERVICE OF A LICENSED ELECTRICIAN SHOULD BE OBTAINED.

A.C. MOTORS

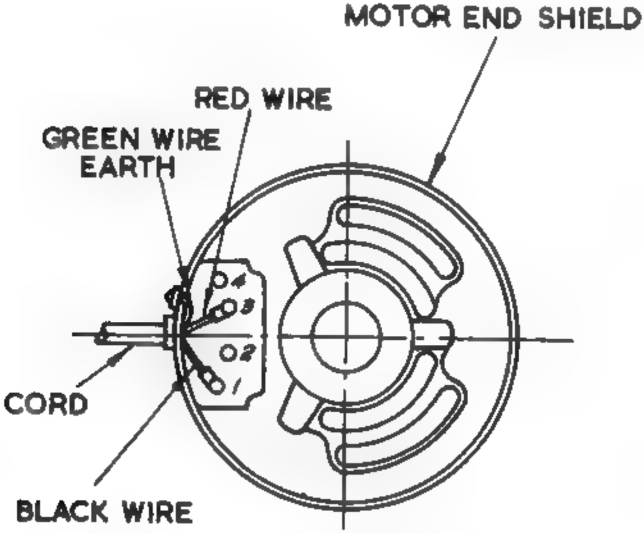
LUBRICATION: The bearings are packed with Ball Roll Medium Grease when the plant leaves the factory and should not require attention for at least five or six shearing seasons. However, in extremely cold climates the grease has a tendency to congeal whilst the machinery is lying idle and may require more frequent replacing. Where these conditions exist it is good practice to run the motor for a short period at regular intervals throughout the year and also to inspect the grease before the commencement of each shearing.

GREASING OF BEARINGS:

1. Disconnect motor from power supply.
2. Remove motor from bracket as follows:-
    a) Loosen the two motor terminal cover screws at the bottom of the motor and remove cover.
    b) Loosen terminal nuts and washers also earth screw and cup washer.
    c) Remove cord.
    d) Remove motor vee pulley, by loosening set screws sufficiently to free pulley.
    e) Slip pulley off, taking care that key does not fall.
    f) Loosen four screws holding motor to bracket.
3. Place motor on bench.
4. Bottom end bearing:-
    a) Remove bearing cover by undoing two set screws.
    b) Clean out old grease with a piece of clean cloth then moisten small brush with petrol, and thoroughly clean out bearing. Care should be taken against the use of too much petrol during this operation.
    c) Refill bearing with new special bearing Ball Roll Medium Grease using approximately the same amount of grease that was taken out. Do not use too much grease as this will cause over-heating of the bearings and will work into the windings of the motor and cause damage.
    d) Replace bearing cover.
5. Pulley end bearing:
    a) Remove cover plate of top bearing by undoing screws.

b) Remove old grease and replace with new grease according to instructions for bottom end bearing.
c) Replace cover plate.

6. Lift motor and replace on bracket.
   a) Replace screws and tighten motor to bracket with spring washers.
   b) Place motor shaft key in position then replace pulley. Make sure that pulley groove is in line with groove in spindle vee pulley.
   c) Tighten pulley set screws.
   d) Fit cord terminals to motor. (See wiring diagram.) (Fig. 7).
   e) Replace terminal washers, tighten terminal nuts and earth screw.
   f) Replace terminal cover and secure with screws.



MOTOR WIRING DIAGRAM.

FIG. 7

INSTALLATION AND CARE OF ELECTRIC SHEARING GRINDERS.

BOTH SINGLE ENDED AND DOUBLE ENDED 240 AC GRINDERS MUST BE WIRED WITH 30 AMP FUSE WIRE TO PROVIDE FOR INITIAL STARTING CURRENT.

To avoid blowing fuses when starting grinder after a period of idleness, the grinder must be first run for approximately five minutes without grinding discs fitted, to allow the grinder to warm up and the grease to run freely. The discs may then be fitted but should always be spun by hand to facilitate starting and to reduce the starting load.

The motor is designed for a high starting torque. The starting winding and condenser automatically cut out in four seconds after starting provided the electricity supply voltage is not below specified voltage of motor.

It is essential that the grinder be set on a firm foundation so as to ensure freedom from undue vibration when running.

When being assembled at the factory the bearings are packed with Ball Roll Medium Grease which after a long period of test has been found to stand up to extreme hot and cold climates with the least oxidisation which causes hardening of the grease.

Under normal conditions the bearings of the grinder should not require attention for at least five or six shearing seasons, but in extremely cold climates it is good practice to run the motor without discs for a short period at regular intervals throughout the year and inspect the grease before the commencement of each shearing season to make sure it has not congealed.

GRINDING INSTRUCTIONS
SETTING UP

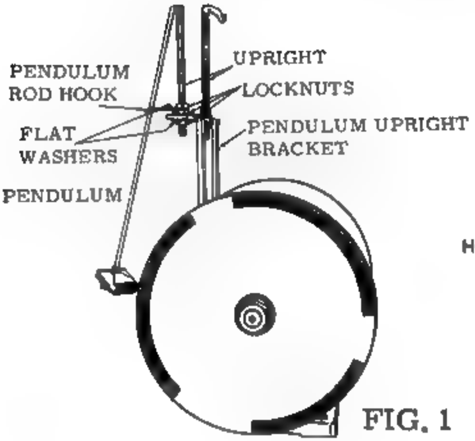


FIG. 1

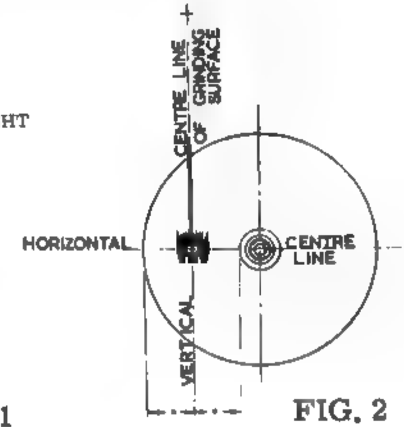


FIG. 2

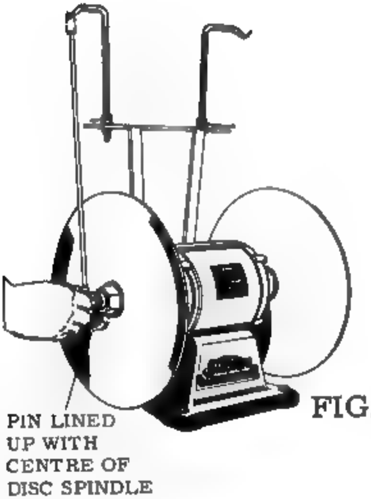

PIN LINED UP WITH CENTRE OF DISC SPINDLE

FIG. 3

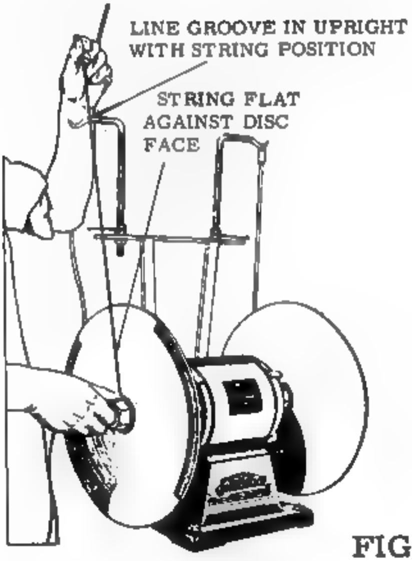

LINE GROOVE IN UPRIGHT WITH STRING POSITION
STRING FLAT AGAINST DISC FACE

FIG. 4

The upright and pendulum must be set up correctly, or it will not be possible to grind combs and cutters efficiently.

1. Remove two hexagon screws and spring washers from grinder and place pendulum upright bracket assembly in position with top plate facing back of grinder, as shown in (Fig. 1) and screw in position, with the two hexagon screws and spring washers.

2. Take a pendulum upright and fit one hexagon locknut and one pendulum Rod Hook and another hexagon locknut and flat washer to it. Place this assembly in slot of top plate and fit a flat washer and one hexagon locknut underneath, tightening locknut finger tight when pendulum is approximately in the centre of slot.

3. Take the pendulum rod and magnet assembly, making sure the pendulum rod is screwed right home into the magnet assembly and the yoke is free to move, when doing this setting, it is important that a comb, cutter, or the magnet keeper is in position on the magnet assembly, to prevent the magnet from sticking to the disc. Place pendulum on hook of upright.

4. First adjust vertical centre of the pendulum rod so that it is midway between the recess and the outside edge of the disc (see Fig. 2). This is done by twisting the pendulum upright either way.

5. The height adjustment can be made by raising or lowering the upright to suit, the correct setting is when the pins (see Fig. 3), of magnetic holder are lined up with the centre of grinder spindle.

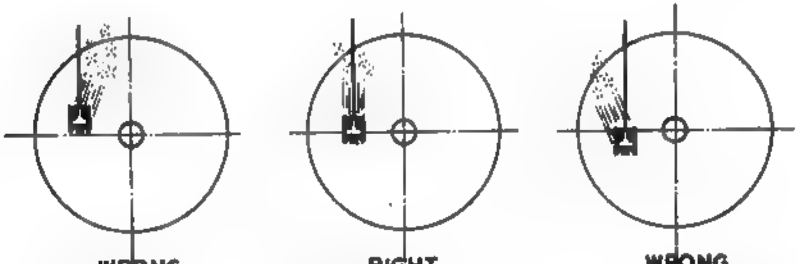
6. **Finally place a piece of string across the face of the disc and slide the pendulum upright in the slot of the upright bracket, until the string lines up with the groove at the top of pendulum upright. (See Fig. 4).**

THIS SETTING ENSURES THAT THE PENDULUM WILL ALWAYS HANG IN THE CORRECT POSITION IN RELATION TO THE FACE OF THE DISC.

7. **When the above set-up has been achieved, lock the upright in position and then re-check steps 4, 5 and 6.**

8. **The pendulum rod hook can then be locked in position, so that the hook portion holds the pendulum clear of the grinder disc when not in use (see Fig. 1).**

NOTE: **The important point to watch when setting up for a comb or cutter is that the sparks fly straight upwards when the comb or cutter is held onto the centre of the grinding side of the disc, as shown in Fig. 5**



WRONG
Requires lowering of Upright.

RIGHT
Sparks flying straight upward.

WRONG
Requires raising of Upright.

FIG.5.

CORRECT GRINDING PROCEDURE

The Comb must be moved slowly from one side to the other as illustrated. Care should be taken to ensure that the comb goes just past both the outside and inside edges of the grinding surface so that the grinding surface is worn evenly right across. Always finish grinding with the comb held in the central "Finishing Position" as shown in Fig. 6. This is to ensure that the grain of cut is running straight up the comb teeth.

Pressure on the comb should be applied squarely and firmly (yet not excessively) with both hands whilst moving the comb across the grinding surface. To ensure that pressure is applied squarely to the grinding surface grip only the Swivel Yoke and not the Magnetic Holder (see Fig. 7).

The grinding discs are shaped in such a way as to ensure that tools are hollow ground which is essential for efficient cutting.

When grinding cutters, the same procedure is followed except that one hand only is used. The reason for using only one hand is to avoid too much pressure being applied to the small cutter.

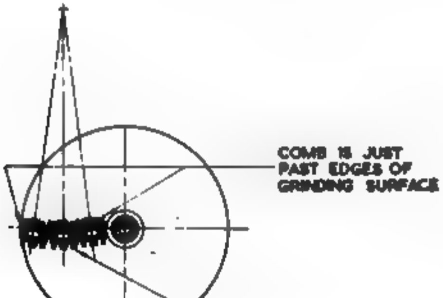


FIG. 6

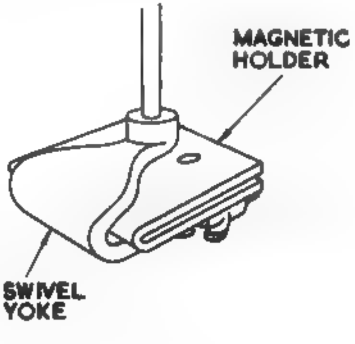


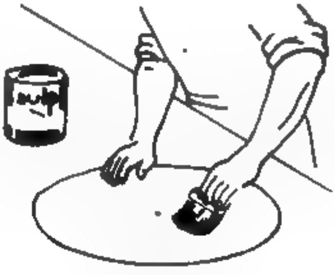
FIG.7

CLEANING DISCS

Make sure that the discs, clamp plate, nuts and washers are thoroughly cleaned before use. Always use a brush and clean hot water, never emery paper. Allow the discs to dry without wiping.

APPLY EMERY

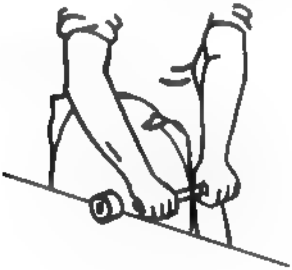
Cut a hole in the sheet of emery cloth to take the stud of the clamp plate. Lay the cloth face downwards on the clamp plate. Smear glue evenly over the disc, taking care that glue does not get into the recess of the disc. Place the disc on top of the emery cloth, to squeeze out surplus glue and any air bubbles. Tighten down clamp plate.



TRIMMING

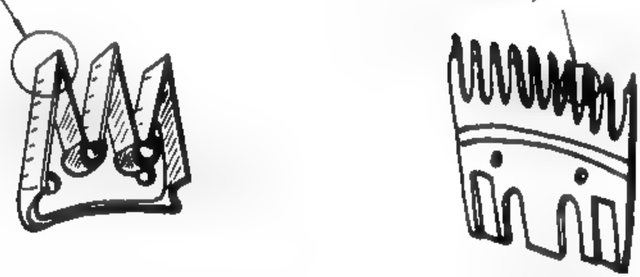
When the emery cloth is held between the clamp plate and disc, trim off most of the overhanging portion of emery cloth. Leave in clamp plate for about one hour to allow glue to set. Then remove disc from clamp plate and allow to dry out thoroughly. Trim around the edges of the disc with a sharp knife, cutting at all times toward the disc in such a manner as not to lift the emery cloth from the face of the disc.

IMPORTANT: Before mounting disc onto grinder, cut out cloth covering the recess in the disc. Remove all foreign matter from the recess, hole and boss of the disc, also from the collar, washer and nut. This is most important to ensure correct grinding face and that the balance of the disc is maintained.



The cutting edges of a Comb or Cutter must be sharp, before the tools will cut efficiently and, to determine this, the comb or cutter must be examined closely after grinding. Hold the comb or cutter in a good light and look closely at the cutting edges as illustrated in Fig. 8. A truly sharp cutting edge cannot be seen. A smooth bright edge indicates that the tool is not sharp and should be carefully ground until all such smooth bright edges disappear.

Particular care should be taken to avoid overheating of the tools while grinding. Overheating, indicated by discolouration of the tool, softens the cutting edges and reduces the cutting life. If a comb or cutter requires excessive grinding it is advisable to allow it to cool off between grindings.



Take particular note of this portion of Cutter Teeth.

Take particular note of this portion of Comb Teeth.

The whole surface of Comb is ground but the cutting edges as indicated must be carefully examined for sharpness.

FIG.8

Sunbeam CORPORATION LIMITED

"E-B" SPECIAL HANDPIECE

(PATENTS PENDING)

S-595

INSTRUCTIONS FOR ITS USE AND CARE

Never place an "E. B." SPECIAL HANDPIECE in a vice. When making adjustments or repairs, rest machine on bench or hold it firmly in the hand. Secure special tools made for the purposes if it is desired to remove the S-585 Screw Bushing and S-587 Tension Nut Screw Bushing.

IMPORTANT: The "E. B." SPECIAL HANDPIECE will take any cutter of the "pinhole" type, but the machine does its best work with a cutter made by this company. These cutters are the only ones of the "pinhole" type which have the patented OVAL hole in the left outside tooth. This oval hole is essential to the proper seating of the cutter on the conical tips of the "E. B." fork yokes. Unless the cutter seats properly the yokes will not swivel in the fork and it will be impossible then to secure even tension on all points of the cutter.
Remember also, that the use of any cutter other than that made by this company will cause excessive wear on the conical tips of the fork yokes.

SPECIAL NOTE: Always throw machine out of gear before releasing tension.

LUBRICATION: The handpiece is lubricated by removing P 6220 oil hole screw in the rear of the barrel. We recommend the use of Shearing Machine Oil, or a recommended brand of S. A. E. 30 oil in the handpiece. Make sure before each run that there is ample oil in the machine.
Other parts of the handpiece should be lubricated with oil as hereafter directed.
Every half-hour squirt oil into the fork cup; on to the cogs in the back-joint and on to the crank roller (through hole in the

nylon cap (S 593) on top of handle). At the same time release the tension and, holding the handpiece in a nearly vertical position with the fork raised off the centre post as far as it will go squirt oil on to the underside of fork so that it flows down into the bottom cup.

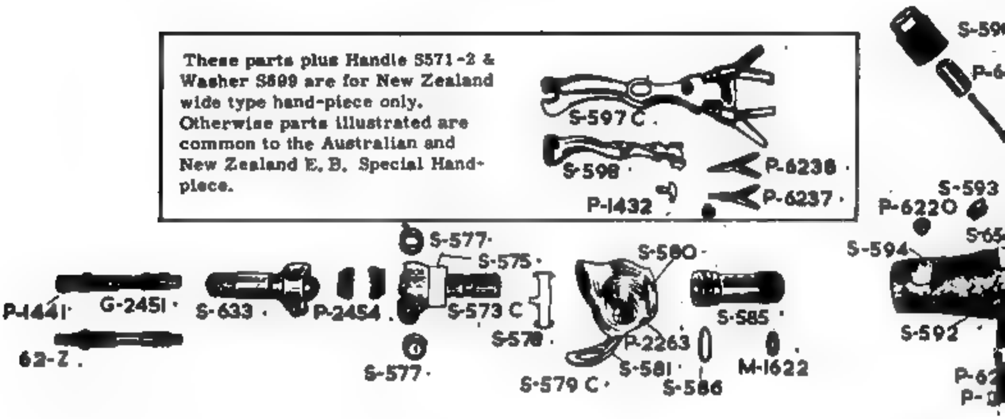
Once a day remove tension nut and slide out tension nut sleeve, then place a little oil in the sleeve and smear some over top of sleeve. Do not put oil or grease into the tension nut itself.
Once a week remove the coupling spring and grease the caps on the backjoint.

TO REMOVE FORK: It is not necessary to remove or alter centre Post. Take off tension nut, withdraw tension nut sleeve and pin. Remove Fork stop screw located behind tension nut screw bushing, then Fork may be drawn out. Crank roller will probably come out.

TO REPLACE FORK AND CRANK ROLLER: Remove nylon cap from top of handpiece. Thread crank roller on to a small screwdriver or piece of stout wire, and, inserting this through front of machine, place it against end of crank pin, and allow roller to slide on to pin. Turn joint spindle until roller is at bottom of machine, insert the fork so as to clear the centre post, and after engaging the roller, make sure that bottom cup is over the centre post and then screw fork stop screw into position.

FITTING TENSION NUT CHECK SPRING: Hold the bent end of spring between left thumb and forefinger with tail facing you, and to the right. Place spring into screw bushing in that position. Insert bent end of spring into small hole in screw bushing and force spring over into the groove. If assembled wrongly the spring will not function. To check that the spring is in correctly, look down on the top of the tension nut screw bushing and the tail of the spring (as distinct from the bent end) should be pointing in a clockwise direction.

PARTS OF THE "E-

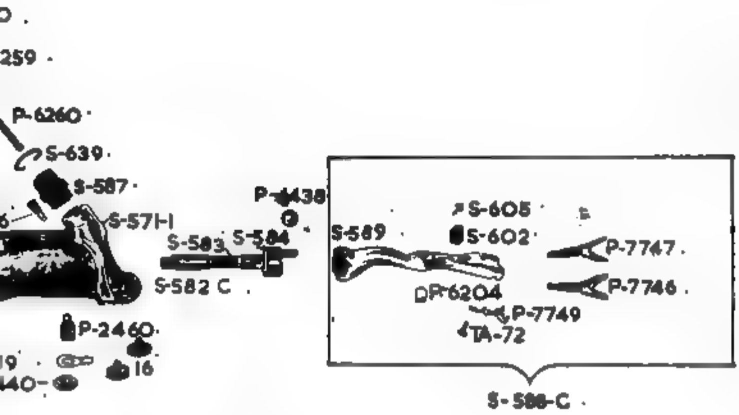

These parts plus Handle S571-2 & Washer S699 are for New Zealand wide type hand-piece only. Otherwise parts illustrated are common to the Australian and New Zealand E. B. Special Hand-piece.

"E. B." SPECIAL H

*16	Comb Screw	S-588-C	Narrow
*62-Z	Helical Spline Spindle	S-589	Narrow
TA-72	Screw (for P 7749)	S-590	Tension
S-571-1	Handle	S-592-1	Felt Han
S-571-2	Handle less felt- cover, N. Z. Type (Not Illustrated	S-593	Nylon Ca
S-573-C	Plain Half Back Joint Assy.	S-594	Nameplat
S-575	Plain Half Back Joint Collar	S-597-C	Wide For
S-577	Joint Cap (2 off)	S-598	Wide Fo
S-578	Coupling Spring		
S-579-C	Joint Guard Assembly		
S-580	Joint Guard	S-602	Fork To
S-581	Joint Guard Tongue	S-605	Tension
S-582-C	Main Spindle & Crank Head Assy.	S-633	Screwed
S-583	Main Spindle	S-639	Tension
S-584	Crank Head	S-656	Fork Sto
S-585	Screw Bushing	S-699	Washer- on N. Z.
S-586	"0" Ring	*P-1432	Fork Yol (N. Z.)
S-587	Tension Nut Screw Bushing		
		*P-1438	Crank Ro

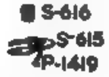
* Part Nos. marked thus are common to the E. B. and the E.

B" SPECIAL HANDPIECE



These parts fitted to earlier Model E. B. Special Fork

S 616	Fork Bottom Cup
S 615	Fork Retaining Spring
P 1419	Screw



Now replaced by:-

P 6204	Fork Bottom Cup
S 656	Fork Stop Pin

HANDPIECE PARTS LIST

Fork Assembly	*P-1441	Joint Spindle Pin
Fork	*M-1622	Felt Washer for Main Spindle
Nut	*P-2263	Rivets for Joint Leathers
dle Cover	*P-2440	Centre Post Nut
p	*G-2451	Joint Spindle with Pin
te Sticker	*P-2454	Cog (2 off)
rk Assy.(N.Z.)	*P-2460	Centre Post
rk (N.Z.)	*P-6204	Fork Bottom Cup
	*P-6219	Felt Cover Retainer
	*P-6220	Oil Hole Screw
Cup	*P-6237	Fork Yoke RH (N.Z.)
Pin Retaining Spring	*P-6238	Fork Yoke LH (N.Z.)
Half Back Joint	*P-6259	Tension Nut Sleeve
Nut Check Spring	*P-6260	Tension Pin
p Pin	*P-7746	Fork Yoke RH
usedwith P-6220 Screw Handle (not illustrated)	*P-7747	Fork Yoke LH
ke Retaining Spring	*P-7749	Fork Yoke Retaining Spring

oller
.B. SPECIAL.

REPLACING JOINT SPINDLE PIN: Drive out the old pin with pin punch and hammer, but as pin is tapered be sure to drive out from the riveted side. Tap in the new pin lightly until it fits closely; do not strike heavily or spindle will be cracked.

The new pin must be riveted over on the small end projecting through the spindle. If more of the pin projects than is needed for riveting - as will occur in many cases - grind off the end on the grinder disc. To rivet, place the large end of the new pin on an anvil and carefully rivet over the small end. Then grind down the riveted end flush with the spindle.

Next, insert joint spindle into bayonet. If the large end of the new pin projects beyond outer surface of bayonet, grind off the pin until it is level with this surface. Take care in grinding not to overheat the pin - a bluish colour will appear if overheated - or the temper will be drawn and the pin will wear away very quickly.

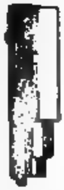
It is good practice to always keep by you a spare joint spindle already fitted with pin; valuable time is frequently saved in this way.

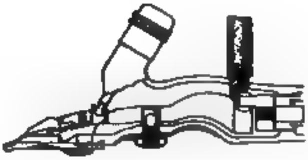
Breakage of pins and, consequently, their replacement, are obviated by the use of the patented Splined Spindle (see part 62Z in Parts List). The special sleeve made by us for attachment to the core of tube in place of usual bayonet, to suit this spindle, can be used in any make of tube.

The CENTRE POST is set at the correct height when the handpiece leaves the factory, and will shear perfectly with any thickness cutter.

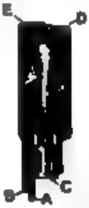
If at any time you should have to re-set the handpiece, to get best results always use an "E. B." Handpiece Centre Post Gauge and a half-worn-out cutter.

"E. B." CENTRE POST GAUGE:





To use the gauge, place a comb of any thickness, and a half-worn cutter on the handpiece. Screw down the tension nut, but not hard. Remove nylon cap on top of handle and see that no part of the felt cover is over the hole. Turn joint spindle until crank roller is at top of its travel, with end of fork right in the centre of the inspection hole, viewed from above.



Insert the gauge through the inspection hole, place the lug "A" in the space between front of crank roller and the fork. Force gauge down until shoulder "B" rests on top of fork. Plunger "C" will then engage the top of crank roller and move upwards. If the head of the plunger reaches to any height between the two levels "D" and "E" at top of gauge, or comes flush with either level, the centre post is at correct height. When, however, the plunger fails to reach lower level "D" or projects beyond upper level "E", the height of the post is incorrect. In such case take out the gauge, release the tension raise or lower centre post as required, screw down tension nut again, and re-gauge until proper height is registered. Be sure then to tighten centre post nut.

FORK YOKES: These must have free movement in the fork at all times, and the inside prong of each must rest on the centre tooth of the cutter when the tension is on. The prongs should not actually touch one another. Once a week withdraw the yokes and thoroughly clean them and the front of the fork. Squirt oil into fork before replacing yokes. To remove a yoke turn it on its side facing outwards, and with a pair of pliers withdraw it. It can be replaced, similarly, with the fingers.

New yokes need not be fitted until the conical tips on the old ones have worn right down.

SCREW FOR FORK YOKE RETAINING SPRING: Keep tight the small screw, that holds this spring to fork. A loose screw will result in a worn thread.

THE CAPS ON THE E. B. BACKJOINT not only keep out sand and grit, but they also carry the burden of the wear that would otherwise fall on the trunnion pins and bearings of the joint halves. Whenever wear becomes noticeable inside the caps replace them, and thereby get much longer service from both the joint halves and cogs.

Keep grease in the caps. See "Lubrication".

WHEN PUTTING NEW CUP IN FORK tap it lightly. It is designed to work in tight, and if driven in hard the fork may be cracked.

IF UNABLE TO GET SUFFICIENT TENSION ON CUTTER, replace the tension pin, tension nut sleeve and fork top cup with new ones. The trouble will almost certainly result from wear in the old parts.

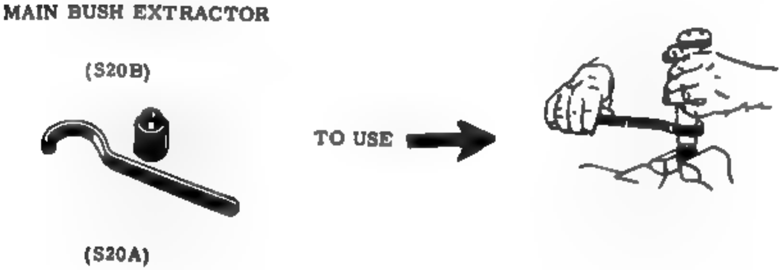
DRAGGING may result from bad grinding. It may also be due to the presence of sand or other foreign matter between comb and comb face of handpiece; from edge of comb face having been knocked and a "rag" or burr of the metal having been raised on the edge. Any such roughness must be carefully removed with a file.

WORN COMPONENTS: Handpieces should be examined after each 6000-7000 sheep - more frequently when the fleeces are carrying sand. Any small parts then found to be worn should be replaced. If this practice is followed, the rate of wear on the larger and more costly parts will be considerably reduced.

AT THE END OF SHEARING thoroughly clean handpiece to remove grit, yolk, etc. Smear liberally with oil, then wrap the handpiece in paper to keep out dust and moisture, and store away in dry place.

* * *

TOOLS FOR REMOVAL & REPLACEMENT OF MAIN BUSH OF "E-B" SPECIAL HANDPIECE



Sunbeam CORPORATION LIMITED

"E-B" HANDPIECE

INSTRUCTIONS FOR ITS USE AND CARE M 2311

Never place an "E-B" HANDPIECE in a vice. When making adjustments or repairs, rest machine on bench or hold it firmly in the hand. Secure special tools made for the purposes if it is desired to remove the P6208 Screw Bushing and P6253 Tension Nut Screw Bushing.

IMPORTANT: The "E-B" HANDPIECE will take any cutter of the "pinhole" type, but the machine does its best work with a cutter made by this Company. These cutters are the only ones of the "pinhole" type which have the patented OVAL hole in the left outside tooth. This oval hole is essential to the proper seating of the cutter on the conical tips of the "E-B" fork yokes. Unless the cutter seats properly the yokes will not swivel in the fork and it will be impossible then to secure even tension on all points of the cutter.

Remember, also, that the use of any cutter other than that made by this company will cause excessive wear on the conical tips of the fork yokes.

SPECIAL NOTE: Always throw machine out of gear before releasing tension.

LUBRICATION: The handpiece is lubricated by removing P6220 oil screw in the rear of the barrel. We recommend the use of Shearing Machine Oil, or a recommended brand of S. A. E. 30 oil in the barrel of the "E-B" Handpiece. Make sure before each run that there is ample oil in the machine.

Other parts of the "E-B" Handpiece should be lubricated with ordinary oil as hereafter directed.

Every Half-hour Squirt oil into the fork top cup; on to the cogs in the back-joint; on to the joint spindle (through hole in the screwed joint yoke); on to the crank roller (through hole in the large-headed inspection screw on top of Handpiece. At the same time release the tension and, holding the Handpiece in a nearly vertical position with the fork raised off the centre post as far as it will go, squirt oil on to the underside of fork so that it flows down into the bottom cup.

Once a day remove tension nut and slide out tension nut sleeve, then place a little shearing machine oil in the sleeve and smear some over top of sleeve.
Do not put oil or grease into the tension nut itself.

Once a week similarly grease the caps on the backjoint. If the coupling spring be removed, these caps will come off.

TO REMOVE FORK: Take off tension nut, withdraw tension nut sleeve and pin, then unscrew centre post from bottom of machine, when fork may be drawn out. Crank roller will, probably, come out with it.

TO REPLACE FORK AND CRANK ROLLER: Remove nylon cap from top of Handpiece. Thread crank roller on to a small screwdriver or piece of stout wire, and, inserting this through front of machine, place it against end of crank pin, and allow roller to slide on to pin. Turn joint spindle until roller is at bottom of machine, and then replace fork. With roller at bottom the end of fork can easily be slipped over it.
With one hand grip front of machine firmly so as to keep fork pressed against bottom of casing, and turn machine on its back, with the rear end against your body. Next replace centre post, but do not screw right in. Make sure the post

is in a fit state to be used further; if much work, replace it with a new one.

FITTING TENSION NUT CHECK SPRING: Hold bent end of spring between left thumb and forefinger, with gap facing you, and place the spring in slot of tension nut screw bushing in that position. If put the other way, the spring will not function.

REPLACING JOINT SPINDLE PIN: Drive out the old pin with pin punch and hammer, but as pin is tapered be sure to drive out from the riveted side. Tap in the new pin lightly until it fits closely; do not strike heavily or spindle will be cracked.

The new pin must be riveted over on the small end projecting through the spindle. If more of the pin projects than is needed for riveting- as will occur in many cases- grind off the end on the grinder disc. To rivet, place the large end of the new pin on an anvil and carefully rivet over the small end. Then grind down the riveted end flush with the spindle.

Next, insert joint spindle into bayonet. If the large end of the new pin projects beyond outer surface of bayonet, grind off the pin until it is level with this surface. Take care in grinding not to overheat the pin- a bluish colour will appear if overheated- or the temper will be drawn and the pin will wear away very quickly.

It is good practice to always keep by you a spare joint spindle already fitted with pin; valuable time is frequently saved in this way.

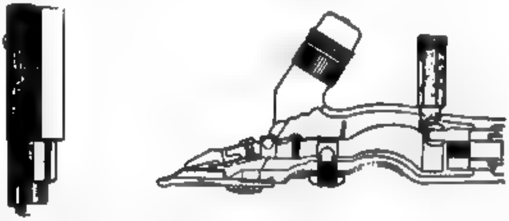
Breakages of pins and, consequently, their replacement, are obviated by the use of the patented Splined Spindle (see part 62Z in Parts List). The special sleeve made by us for attachment to the gut core of tube in place of usual bayonet, to suit this Spindle, can be used in any make of tube.

The CENTRE POST is set at the correct height when the Handpiece leaves the factory, and will shear perfectly with any thickness cutter.

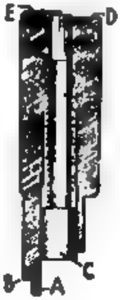
If at any time you should have to re-set the Handpiece, to get best results always use an "E-B" Handpiece Centre Post Gauge and a half-worn-out cutter.

The surest and easiest way of determining the correct height of the centre post is to use the

"E-B" CENTRE POST GAUGE.



To use the gauge, place a comb of any thickness, and one of the cutters of the thickness you intend using, on the Handpiece. Screw down the tension nut, but not hard. Remove nylon cap on top of casing and see that no part of the felt cover is over the hole. Turn joint spindle until crank roller is at top of its travel, with end of fork right in the centre of the inspection screw hole, viewed from above.



Inserting the gauge through the inspection screw hole, place the lug "A" in the space between front of crank roller and the fork. Force gauge down until shoulder "B" rests on top of fork. Plunger "C" will then engage the top of crank roller and move upwards. If the head of the plunger reaches to any height between the two levels "D" and "E" at top of gauge, or comes flush with either level, the centre post is at correct height. When, however, the plunger fails to reach lower level "D" or projects beyond upper level "E", the height of the post is incorrect. In such case take out the gauge, release the tension, raise or lower centre post as required, screw down tension nut again, and re-gauge until proper height is registered. Be sure to then tighten nut on bottom of post.

FORK YOKES: These must have free movement in the fork at all times, and the inside prong of each must rest on the centre tooth of the cutter when the tension is on. The prongs, therefore, should not actually touch one another. Once a week withdraw the yokes and thoroughly clean them and the front of the fork. Squirt oil into fork before replacing yokes. To remove a yoke turn it on its side, outwards, with a pair of pliers, and withdraw it. It can be replaced, similarly, with the fingers.
New yokes need not be fitted until the conical tips on the old ones have worn right down.

SCREW HOLDING FORK YOKE RETAINING SPRING: Keep tight the small screw, with nut, that holds this spring to fork. A loose screw will soon have a worn thread. Should screw become loose, or when putting in a new screw, tighten screw first and hold tight while screwing on the nut.

THE CAPS ON THE E-B BACKJOINT not only keep out sand and grit, but they also carry the burden of the wear that would otherwise fall on the trunnion pins and bearings of the joint halves. Whenever wear becomes noticeable inside the caps replace them, and thereby get much longer service from both the joint halves and cogs.
Keep grease in the caps. See "Lubrication".

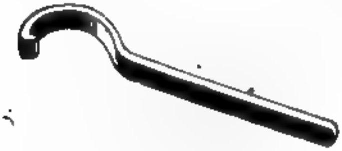
WHEN PUTTING A NEW CUP IN FORK tap it in lightly. It is designed to work in tight, and if driven in hard the fork may be cracked.

IF UNABLE TO GET SUFFICIENT TENSION ON CUTTER, replace the tension pin, tension nut sleeve and fork top cup with new ones. The trouble will almost certainly result from wear in the old parts.

DRAGGING may result from bad grinding; from the presence of sand or other foreign matter between comb and comb bed of Handpiece; from edge of comb bed having been knocked and a "rag" or burr, of the metal having been raised on the edge. Any such roughness must be carefully removed with a file or on the grinder, but do not touch face of comb bed. Handpieces in constant use should be examined after each 6,000-7,000 sheep - more frequently when the fleeces are carrying sand. Any small parts then found to be worn should be replaced. If this practice be followed, the rate of wear on the larger and more costly parts will be much slower.

AT THE END OF SHEARING dip front of Handpiece into very hot water, to clean off grit, yolk, etc. As soon as dry dip this part of machine into oil, then wrap the Handpiece in paper to keep out dust and moisture, and store in dry place.

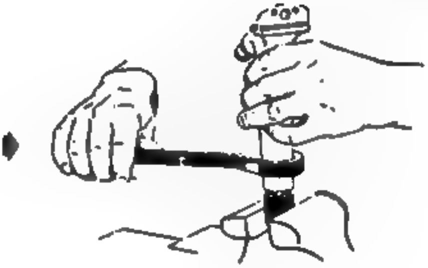
TOOLS FOR REMOVAL AND REPLACEMENT OF MAIN BUSH OF "E-B" HANDPIECE.



(S20A)
MAIN BUSH EXTRACTOR—

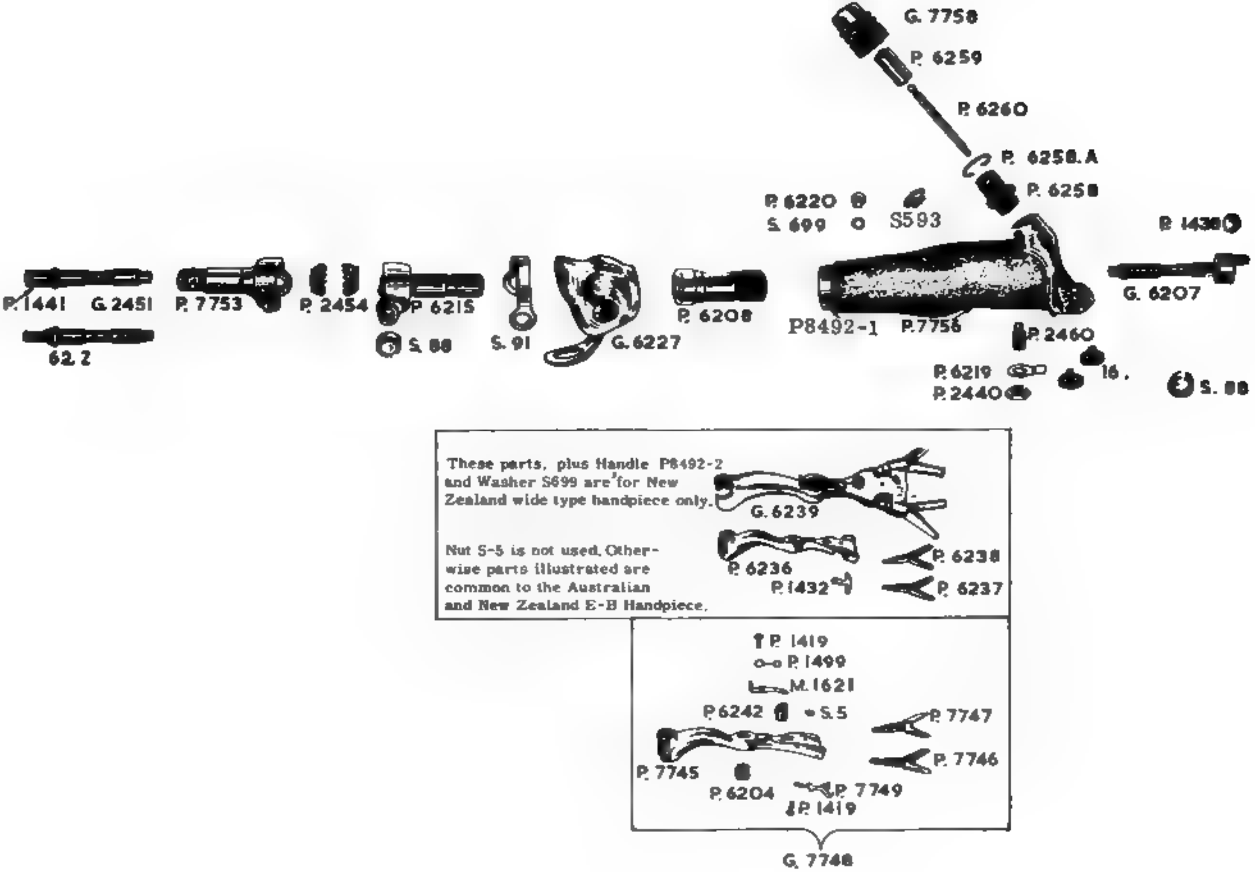
(S20B)

TO USE



MADE IN AUSTRALIA
Sunbeam
SYDNEY

PARTS OF THE "E-B" HANDPIECE.



These parts, plus Handle P8492-2 and Washer S699 are for New Zealand wide type handpiece only.

Nut S-5 is not used. Otherwise parts illustrated are common to the Australian and New Zealand E-B Handpiece.

"E-B" HANDPIECE PARTS LIST.

S5	Nut for P1419 screw
16	Comb screw
62-Z	Helical Spline Spindle
S88	Cap for joint 2 off
S91	Coupling spring
S593	Nylon cap
S699	Washer - used with P6220 screw in N. Z. Handle
P1419	Screw for P1499 and P7749
P1432	Fork yoke retaining spring (New Zealand)
P1438	Crank roller
P1441	Joint spindle pin
P1499	Tension pin retaining spring
M1621	Fork stop
P2440	Centre post nut

G2451	Joint spindle with pin
P2454	Cog 2 off
P2460	Centre post
P6204	Fork bottom cup
G6207	Main spindle and crankhead
P6208	Screw bushing
P6215	Plain half back joint
P6219	Felt cover retainer
P6220	Oil hole screw
G6227	Joint guard assembly
P6236	Fork body only (New Zealand)
P6237	Fork yoke R. H. (New Zealand)
P6238	Fork yoke L. H. (New Zealand)
G6239	Wide fork assembly (New Zealand)

P6242	Fork top cup
P6258	Tension nut screw bushing
P6258A	Tension nut check spring
P6259	Tension nut sleeve
P6260	Tension pin
P7745	Fork body only
P7746	Fork yoke R. H.
P7747	Fork yoke L. H.
G7748	Fork complete
P7749	Fork yoke retaining spring
P7753	Screwed half of back joint
P7756	Felt cover
G7758	Tension nut with disc
P8492-1	Handle
P8492-2	Handle less felt covers N. Z. type (Not illus.)

PARTS NOT ILLUSTRATED

M1622	Felt washer for main spindle
P2263	Rivets for joint leathers
G2459	Centre post and nut

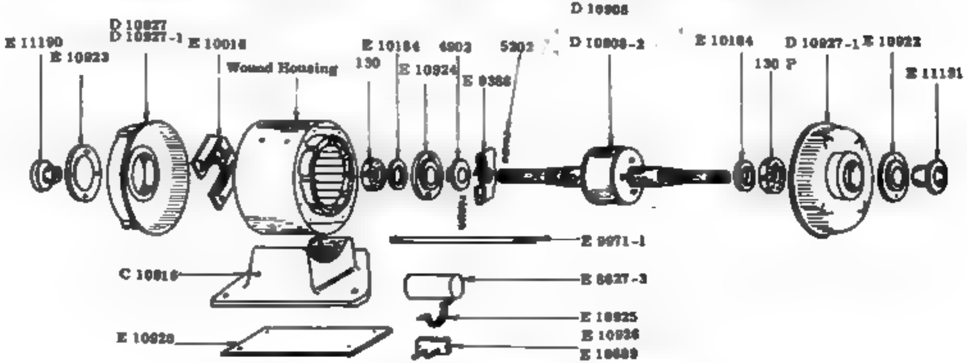
P6206	Main spindle
P6213	Leather joint guard only
P6214	Leather tongue only

P6240	Tension nut disc
G7752	Joint complete
P7755	Tension nut without disc
P7757	Crankhead

A.C. DOUBLE ENDED DISC GRINDER MODEL "GD"

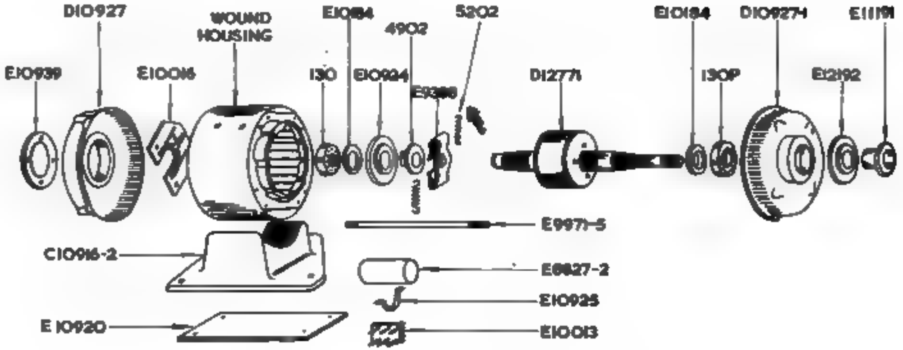
SINGLE PHASE TYPE :- KSB51 2SCB THREE PHASE TYPE :- KTB51-2CB

WHEN ORDERING REPLACEMENTS PLEASE QUOTE PART Nº & SERIAL Nº ON NAMEPLATE OF MOTOR



AC SINGLE ENDED DISC GRINDER - MODEL "JW"

Type KSB50-2SCB Single Phase



AC DOUBLE ENDED DISC GRINDER

Single Phase Type: KSB51-2CSB-Three Phase Type: KTB51-2CB

MODEL G. D.

When ordering Replacements please quote Part No. and Serial No. on Nameplate of Motor.

PART NO.	PART NAME
130	Ball Bearing Locked End
130 P	Ball Bearing Free End
4902	Cut-out Switch Bush
5202	Cut-out Switch Spring
E 8827-3	Capacitor
E 9388	Cut-out Switch Body Assembly
E 9971-1	Endshield Stud
E 10016	Cut-out Switch Plate Assembly
E 10184	Bearing Washer
E 10689	Terminal Plate Assembly (Three Phase)
D 10908-1	Rotor Shaft Assembly (Single Phase)
D 10908-2	Rotor Shaft Assembly (Three Phase)
C 10916	Base
E 10920	Base Plate
E 10922	Outside Bearing Cover Free End
E 10923	Outside Bearing Cover Locked End
E 10924	Inside Bearing Cover Locked End
E 10925	Capacitor Bracket
E 10926	Terminal Plate Assembly (Single Phase)
D 10927	Endshield Locked End (Single Phase)
D 10927-1	Endshield Locked End (Three Phase)
E 11190	Disc Collar
E 11191	Disc Collar

Wound Housing - Quote Serial No.

AC SINGLE ENDED DISC GRINDER

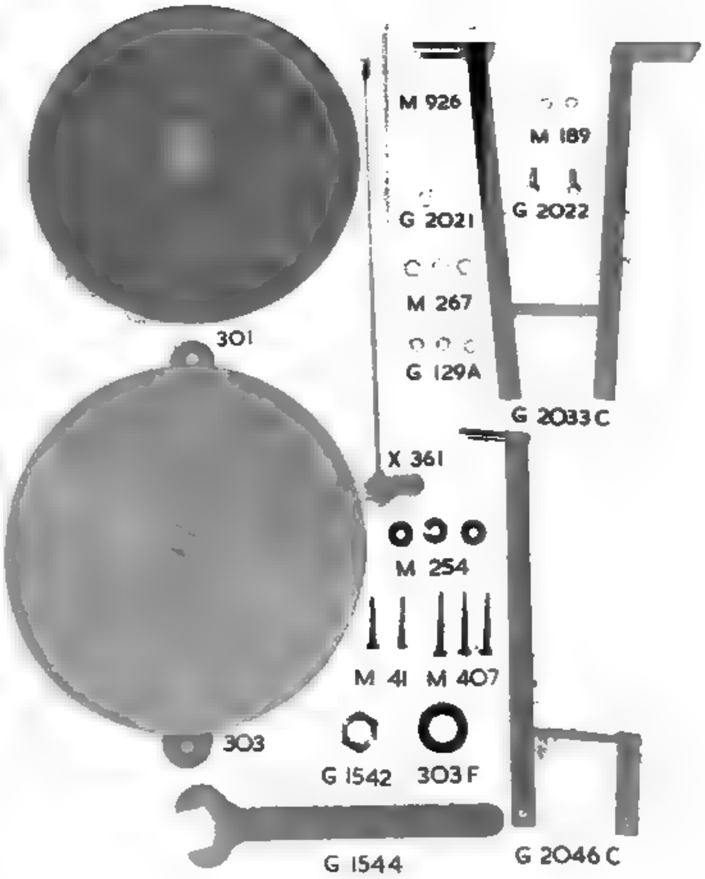
Type KSB50-2SCB Single Phase

MODEL J. W.

When ordering Replacements please quote Part No. and Serial No. on Nameplate of Motor.

PART NO.	PART NAME
130	Ball Bearing Locked End
130 P	Ball Bearing Shaft End
E 9971-5	Endshield Stud
E 10184	Bearing Washer
E 12192	Outside Bearing Cover Shaft End
E 10924	Inside Bearing Cover Locked End
E 10013	Terminal Plate Assembly
D 10927-1	Endshield Shaft End
D 12771	Rotor Shaft Assembly
E 10939	Outside Bearing Cover Locked End
E 10920	Capacitor and Base Plate
C 10916-2	Base
E 11191	Disc Collar
D 10927	Endshield Locked End
E 10016	Cut-out Switch Plate Assembly
4902	Cut-out Switch Bush
5202	Cut-out Switch Spring
E 9388	Cut-out Switch Body Assembly
E 8827-2	Capacitor
E 10925	Capacitor Bracket

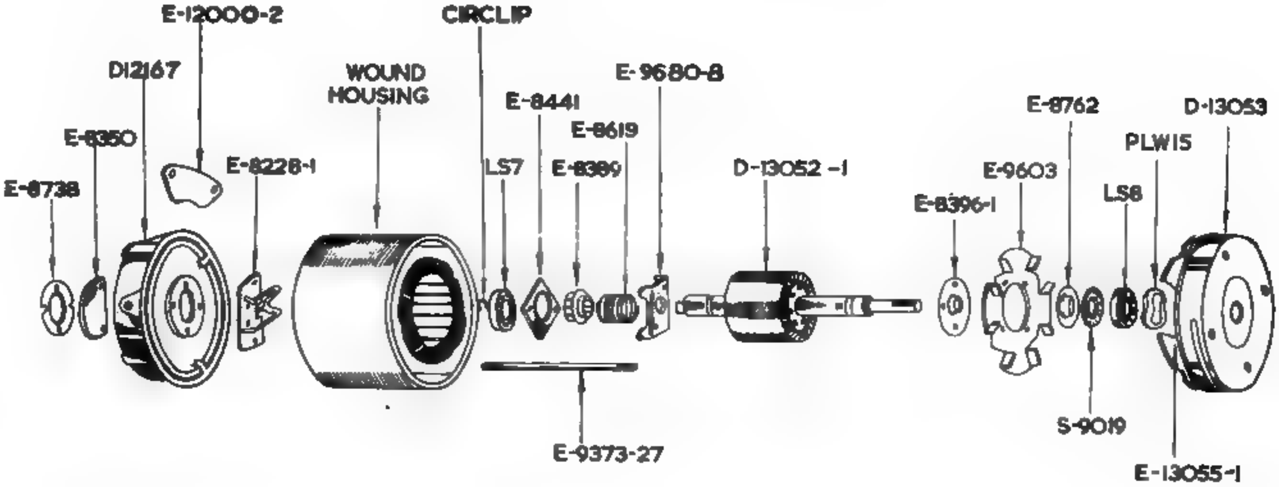
Wound Housing - Quote Serial No.



ELECTRIC DOUBLE AND SINGLE ENDED GRINDER, MODEL "GD" AND MODEL "JW"

PART NO.	PART NAME
M 41	Coach Screw for Clamp Plate
G 129 A	Grinder Upright Nut
M 189	Spring Washer for Upright Bracket Assembly
M 254	Flat Washer for Base
M 267	Flat Washer for Upright
301	Disc
303	Clamp Plate Assembly
303 F	Washer for Clamp Plate
G 1542	Clamp Plate Nut
G 1544	Spanner
X 361	Magnet Assembly
M 407	Coach Screw for Base
M 926	Grinder Upright
G 2021	Pendulum Holder
G 2022	Screw for Upright Bracket Assembly
G 2033 C	Pendulum Upright Bracket Assembly (Double Ended)
G 2046 C	Pendulum Upright Bracket Assembly (Single Ended)

1/3 H. P. A.C. VERTICAL SHEARING MOTOR - SINGLE PHASE-TYPE: SBE 53-2.



1/3 H. P. A. C. VERTICAL FARM MODEL SHEARING MOTOR

SINGLE PHASE - TYPE: SBE 53-2

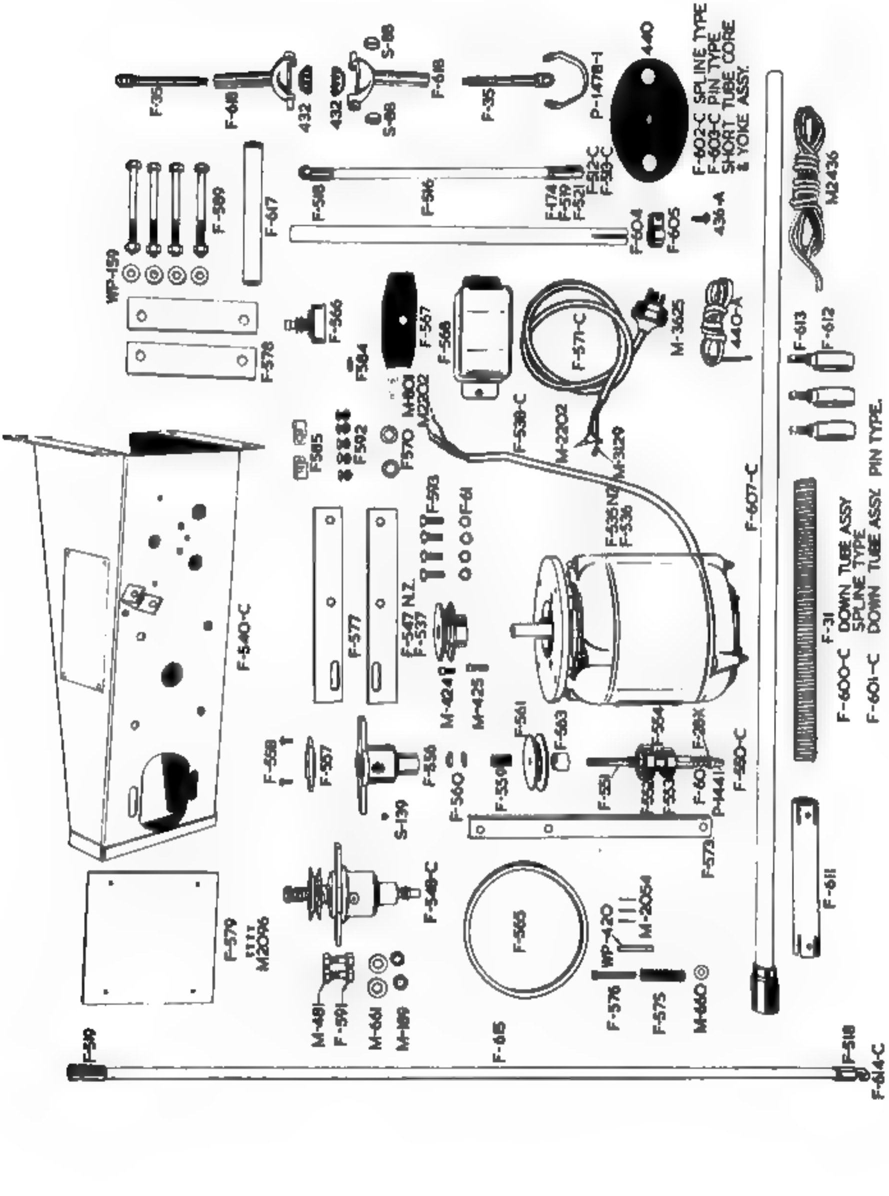
PART NO.	PART NAME
LS-7	Ball Bearing - Switch End
LS-8	Ball Bearing - Fan End
PLW 15	Wavy Washer
E 8228-1	Cut out Switch Plate Assembly
[illegible] 8350	Terminal Cover
E 8389	Cut out Switch Bush
E 8396-1	Fan Boss
E 8441	Bearing Cover Inside- Switch End
E 8619	Cut out Switch Spring
E 8738	Bearing Cover Outside- Switch End
E 8762	Bearing Cover Inside - Fan End
S 9019	Oil Seal (Felt Washer)
E 9373-27	Endshield Stud
E 9603	Fan
E 12000-2	Cover Plate
D 12167	Endshield - Switch End
[illegible] 9680-8	Cut out Switch Body Assembly
D 13052-1	Wound Armature
D 13053	Endshield - Fan End
E 13055-1	Fan Baffle Plate

Circlip - 15 mm External

Wound Housing - Quote Serial No.

When ordering replacements, please quote Part No. and Serial No. on nameplate of motor.

"FARM MODEL" VERTICAL ELECTRIC OVERHEAD GEAR.



"FARM MODEL" VERTICAL ELECTRIC OVERHEAD GEAR PARTS DIAGRAM

PART NO.	PART NAME
F 28 X	Friction Spindle Catch
F 31	Tube Spring
F 35	Spindle
F 60	Catch Spring
F 61	5/16 Spring Washer
S 88	Joint Cup
S 139	Grease Nipple
WP 159	Washer for F 589 Bolts
F 174	Nail
M 189	3/8 Spring Washers
WP 420	Pivot Pin
M 419	Motor Pulley Screw
M 420	Motor Pulley Screw
432	Tube Cogs
436 A	Clamp Screw
440	Leather Guard
440 A	Leather Guard Lace
M 481	Nut for Housing
F 512 C	Short Core Assy. (Pin Type)
F 513 C	Short Core Assy. (Spline Type)
F 516	Short Core
F 518	Hook
F 519	Bayonet
F 521	Sleeve
F 535	Motor (for New Zealand)
F 536	Motor
F 537	Motor Pulley
F 538 C	Cord Assy.
F 540 C	Motor Bracket Assy.
F 547	Motor Pulley (for New Zealand)
F 548 C	Main Spindle Housing Assy.
F 550 C	Main Spindle Assy.
F 551	Main Spindle
F 552	Large Ball Race.

(over)

PART NO.	PART NAME
F 553	Small Ball Race
F 554	Spacer
F 555	Locknut
F 556	Housing
F 557	Housing Cover
F 558	Cover Screw
F 559	Spring
F 560	Locknut
F 561	Spindle Pulley
F 563	Screwed Clutch
F 564	Vee Belt (for New Zealand)
F 565	Vee Belt
F 566	Switch
F 567	Switch Shield
F 568	Switch Cover
F 570	Bracket Grommet
F 571 C	Cord Connector Assembly
F 573	Switch Lever
F 575	Switch Lever Spring
F 576	Spring Pin
F 577	Bracket Plate
F 578	Side Plate
F 579	Guard Plate
F 584	Locknut
F 585	Cable Clamp
F 589	Bolts and Nuts for Gear to planking
F 591	Bolt for Housing
F 592	Gutter Bolt and Nut
F 593	Screw
F 600 C	Down Tube Assy. (Spline Type)
F 601 C	Down Tube Assy. (Pin Type)
F 602 C	Short Tube Core and Yoke Assy. (Spline Type)
F 603 C	Short Tube Core and Yoke Assy. (Pin Type)
F 604	Short Tube

(over)

PART NO.	PART NAME
F 605	Clamp
F 606 C	Long tube with Spring and sleeve Assy.
F 607 C	Long tube Assy.
F 611	Sleeve
F 612	Collar
F 613	Screws
F 614 C	Core Assy
F 615	Long Core
F 617	Ferrule
F 618	Joint Yoke
F 621	Square Washer
M 660	1/4 Flat Washer
M 661	3/8 Flat Washer
M 801	3/16 Flat Washer
P 1441	Back Spindle Pin
P 1478-1	Joint Spring
M 2054	Split Pin
M 2096	Self Tapping Screws
M 2202	Lugs
M 3129	Terminal Lugs
M 3625	Three Pin Plug

NOTE: For South Africa where two speeds are required the following Part Nos. are different:-

F 619	Spindle Pulley
F 620	Motor Pulley
F 564	Vee Belt

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NOTES

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